



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,164	06/21/2001	Ken Masaoka	Q62630	3964

7590 10/08/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037-3213

EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 10/08/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/885,164

Applicant(s)

MASAOKA ET AL.

Examiner

Justin R Fischer

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 June 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 37-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12-18, 20-24, 26, 27 and 31-36 is/are rejected.
- 7) ☒ Claim(s) 8-11, 19, 25 and 28-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-36, drawn to a tire assembly/tire, classified in class 152, subclass 454.
  - II. Claims 37-42, drawn to a rim, classified in class 152, subclass 388.
2. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed- invention I fails to define the rim as being formed of a main body portion and a separate body portion. The subcombination has separate utility such as in a tire construction in which the maximum tire section width does not extend through the rim.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Steven Gruskin on September 22, 2003 a provisional election was made with traverse to prosecute the invention of a tire/tire assembly, claims 1-36. Affirmation of this election must be made by applicant in

Art Unit: 1733

replying to this Office action. Claims 37-42 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 13, 14, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 defines a bead portion comprising a protruding portion and then requires that the bead portion is inserted within the protruding portion. This language does not provide a clear and concise understanding of the claimed invention. Applicant is asked to clarify the claimed assembly without the introduction of new matter.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 12, 22, 26, 27, 31, 32, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakaki (JP 03262712). As best depicted in Figures 1 and 2, Sakaki teaches a pneumatic tire construction having at least one carcass ply 16 composed of a plurality of ply cords and two ends and a belt layer 17 provided outside

Art Unit: 1733

of said at least one carcass ply and composed of belt cords extending in a direction that intersects said ply cords, wherein the end portions of said at least one carcass ply are held in a rim 3 such that the maximum cross sectional width of the tire extends through said rim. In this instance, the maximum cross sectional width of the tire is positioned at the interface of the tire structure and the rim in the bead seat region, as best depicted in Figure 2. This position is radially inward of the rim, particularly the rim flanges 22, and thus constitutes "extending through said rim".

With respect to claims 12, 22, and 31, Sakaki defines bead cores 14 formed of metallic reinforcing elements in respective bead portions.

Regarding claims 15 and 32, the carcass ply contains a "connecting portion" directly beneath the bead core that is substantially parallel to the tire center axis and is held in and fixed with the rim.

With respect to claim 26, the carcass ply of Sakaki is defined by an end portion that is held within/against the rim and a neighboring portion that is not held within/against the rim.

9. Claims 1-7, 12-18, 20, 22, 26, 27, 31, 32, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Monzini (US 4,168,732). As best depicted in Figure 1, Monzini teaches a pneumatic tire construction have a belt 42 composed of cords, wherein the maximum cross section tire width extends through the rim in the lower bead portion. In describing the inventive tires, Monzini states, "the tires of this invention are those of the so called "radial" class, i.e. comprising a structure formed by a plurality of flexible but inextensible elements (the so called "cords") which extend

Art Unit: 1733

between the tire bead reinforcing steel wires....” (Column 1, Lines 50-55). Although not depicted in Figure 1, Monzini is directed to a tire construction having at least one carcass ply, as described the previously cited passage.

Regarding claims 2-7, the rim of Monzini is in fact a two-component rim in an analogous manner to the claimed invention. In this instance, the end of the main body rim portion 46, which abuts the separate body rim portion 54, is viewed as the rim flange.

With respect to claims 12, 22, 31, and 34, Monzini discloses a pair of bead cores formed of conventional steel wires 43.

Regarding claims 13-18 and 32, the tire casing of Monzini, in an analogous manner to the claimed invention, is embedded or disposed within an opening in the multi-component rim assembly. As set forth in the 112, 2<sup>nd</sup> Paragraph rejection above, the language of this claim does not provide a clear and concise description of the claimed invention, particularly since the claim initially defines the bead portion as comprising a protruding portion and then requires the bead portion to be inserted within the protruding portion. The carcass plies, though not depicted, are recognized as being turned around the bead cores, in which case a portion of the carcass (the portion that is directly beneath the bead core as it is being turned upward) would necessarily be “substantially parallel” to the tire center axis. Also, as previously stated, the multi-component rim is defined by a main body portion 46 and a separate body portion 54.

Art Unit: 1733

With respect to claim 20, in analogous manner to the claimed invention, the bead portion of Monzini is disposed within a recess or cavity defined by the separate body rim portion.

Regarding claim 26, the carcass ply of Monzini is defined by an end portion that is held within the rim and a neighboring portion that is not held within the rim.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-7, 12, 27, 31, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (JP 50-71004) and further in view of Mechanics of Pneumatic Tires (Pages 360-363 and 372). As best depicted in Figures 4-6, Kobayashi is directed to a pneumatic tire construction in which the maximum section width of the tire extends through the rim. While Kobayashi fails to expressly depict at least one carcass ply and a belt layer, these plies/layers represent the fundamental structure of modern day tire constructions that provide the necessary stability and reinforcement, as evidenced by Mechanics of Pneumatic Tires (Page 360, §3.2 and Page 372, Lines 7+). As such, one of ordinary skill in the art at the time of the invention would have found it obvious to include at least one carcass ply and a belt layer in the pneumatic tire construction of Kobayashi as these components define the fundamental structure of modern day tires.

Art Unit: 1733

Regarding claim 2, Figure 5 clearly depicts a rim having rim flanges.

With respect to claims 3 and 4, Figures 4 and 5 depict a rim formed of a main body portion 30 and an engaging member or separate body 62, wherein the end portion of the tire casing (carcass ply) is between the respective rim components. It is further noted, with respect to claim 4, that the rim portions contained within the tire cavities of Figures 4-6 contain flanges.

Regarding claims 5 and 6, it is evident from Figures 4 and 5 that the main body portion 30 is disposed axially inward of the carcass portion while the engaging member or separate body 62 is disposed axially outside of the carcass end portion. The limitation "wherein said main body is constructed based on an industrial standard rim" is satisfied by Kobayashi since the tire of Kobayashi is an improvement over a conventional tire/rim construction, as depicted in Figure 1.

With respect to claim 7, as best depicted in Figure 4, the separate body 62 surrounds the rim flange portion of the main body. The rim flange is being viewed as the portion of the rim that loops away from the main body inside of the tire cavity.

Regarding claims 12, 31, and 34, *Mechanics of Pneumatic Tires* evidences the conventional use of bead cores in modern day tire constructions- in particular, bead cores represent a fundamental and essential element of tire constructions that assists in the mounting and running of tires.

12. Claims 1-7, 12-18, 20, 22, 26, 27, 31, 32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monzini and further in view of *Mechanics of Pneumatic Tires* (Page 360, §3.2 and 3rd Paragraph). This rejection is similar to 102(b)



Art Unit: 1733

rejection applied above; however, Mechanics of Pneumatic Tires has been added to expressly teach the use of at least one carcass as described by the claimed invention.

As noted above, Monzini is directed to a radial, pneumatic tire constructing having a belt layer formed of cords, wherein the maximum tire cross sectional width extends through the rim. While Monzini describes the inventive tire as being of the "radial" class (refers to carcass ply), the reference fails to expressly depict the inclusion of carcass plies in Figure 1. In any event, it is recognized that carcass plies represent a fundamental and essential structural component of modern day tires. As shown for example by Mechanics of Pneumatic Tires, "the most important (structural element" is the casing or carcass made up of many flexible filaments..." (Page 360). Additionally, as is conventional in tire constructions, Mechanics recognizes that the carcass is commonly turned around respective bead cores in each bead region, defining a main portion and a turnup portion (Page 362). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the tire of Monzini with at least one conventional, carcass ply, as set forth above.

Regarding claims 2-7, the rim of Monzini is in fact a two-component rim in an analogous manner to the claimed invention. In this instance, the end of the main body rim portion 46, which abuts the separate body rim portion 54, is viewed as the rim flange.

With respect to claims 12, 22, 31, and 34, Monzini discloses a pair of bead cores formed of conventional steel wires 43.

Regarding claims 13-18 and 32, the tire casing of Monzini, in an analogous manner to the claimed invention, is embedded or disposed within an opening in the multi-component rim assembly. As set forth in the 112, 2<sup>nd</sup> Paragraph rejection above, the language of this claim does not provide a clear and concise description of the claimed invention, particularly since the claim initially defines the bead portion as comprising a protruding portion and then requires the bead portion to be inserted within the protruding portion. The carcass plies, though not depicted, are recognized as being turned around the bead cores, in which case a portion of the carcass (the portion that is directly beneath the bead core as it is being turned upward) would necessarily be "substantially parallel" to the tire center axis. Also, as previously stated, the multi-component rim is defined by a main body portion 46 and a separate body portion 54.

With respect to claim 20, in analogous manner to the claimed invention, the bead portion of Monzini is disposed within a recess or cavity defined by the separate body rim portion.

Regarding claim 26, the carcass ply of Monzini is defined by an end portion that is held within the rim and a neighboring portion that is not held within the rim.

13. Claims 21, 23, 33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of (a) Sakaki, (b) Monzini and Mechanics of Pneumatic Tires, or (c) Kobayashi and Mechanics of Pneumatic Tires as applied in claims 12 and 31, respectively, above and further in view of Yamada (US 5,423,366). In describing the bead core, Sakaki, Monzini, and Kobayashi (in view of Mechanics of Pneumatic Tires) generically describe the use of conventional steel wires- the reference is

Art Unit: 1733

completely silent with respect to the construction of the bead core and thus necessarily fails to define the claimed relationship regarding the spring constant. As described by applicant, the spring constant is directly correlated to the aspect ratio of the bead core, wherein a bead core having a larger width as compared to the height demonstrates a larger spring constant in the tire width as compared to the circumferential direction.

One of ordinary skill in the art at the time of the invention would have readily appreciated a bead core design having a larger spring constant in the width direction, as compared to the circumferential direction, since bead cores having larger widths, as compared to heights, are well known and extensively used in the tire industry. Yamada describes one example in which the ratio of the bead core height to bead width is between 1.7 and 3.3 (Column 3, Lines 40-45). Although Yamada is directed to heavy duty tires, the reference more generally recognizes the use of such bead core constructions in the tire industry- the reference in no way suggests the use of such bead core constructions in only heavy duty tires. As such, it would have been obvious to one of ordinary skill in the art to use the well known bead construction defined by the claimed invention, there being no conclusive showing of unexpected results to establish a criticality for the claimed bead construction.

14. Claims 24 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of (a) Sakaki and Yamada, (b) Monzini, Mechanics of Pneumatic Tires, and Yamada or (c) Kobayashi, Mechanics of Pneumatic Tires, and Yamada as applied in claims 21 and 33, respectively, above and further in view of Unseld (US 5,665,298). In describing the bead cores, the cited references suggest a construction formed of

Art Unit: 1733

steel wires. However, it is also known in the tire industry to form bead cores of additional materials, such as thermoplastic resin materials, including nylon. Unseld provides one example of the well known use of thermoplastic resin materials in the formation of tire bead cores (Column 3, Lines 5-10). Thus, since the claimed materials are well known in the tire industry and recognized as being suitable bead core materials, one of ordinary skill in the art at the time of the invention would have found it obvious to form the bead cores of the respective tire constructions out of thermoplastic resin materials, there being no conclusive showing of unexpected results to establish a criticality for such a bead core design.

***Allowable Subject Matter***

15. Claims 8-11, 19, 25, and 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 8-11, the bead cores in all of the prior art references noted above contain the bead cores in the end portions of the carcass- none of the references disclose the use of bead cores in the separate body rim portion.

With respect to claim 19, the prior art references of record fail to disclose, suggest, or teach a tire construction in which the end portion of the carcass comprises a protrusion that is engaged with the inner wall of the main body rim portion.

Regarding claim 25, none of the prior art references of record disclose a single embodiment having both a contact width for the main body rim portion and the separate

Art Unit: 1733

body rim portion and thus necessarily fail to suggest the claimed relationship regarding the same.

With respect to claims 28-30, while bead reinforcing layers (e.g. chafers) are known in the tire industry, one of ordinary skill in the art at the time of the invention would not have found it obvious to include a reinforcing layer in combination with the specific tire design of the claimed invention.

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shoemaker (US 1,903,575) discloses a pneumatic, radial tire construction in which the maximum cross section width of the tire extends through the rim, which is formed of multiple components. In this instance, though, the tire does not contain a belt layer formed of belt cords and specifically desires that only the radial cords of the carcass ply are used to produce a tire that is very thin and flexible.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 1733

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Justin Fischer

September 26, 2003

  
Michael W. Ball  
Supervisory Patent Examiner  
Technology Center 1700